William S. Bathgate

Certifications - *PMP, ITIL, COBIT, CISA, CRISC, CISM, CGEIT*
US DOD Top Secret Security Clearance
Bachelors of Sciences EE, Western Illinois
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Global Technology Professional

Professional Work History

2015 - 2018 TATA Consulting, Fiat Chrysler Automotive Account – Current Position

2015 – 2018 Global Program Manager – Auburn Hills, MI

Manger of Global Programs for enhancements of systems for MOPAR, Secure Vehicle. U-Connect Radio Systems, Connected Vehicle and Autonomous Vehicles. Reports directly to FCA Director of Systems Planning.

2009 - 2015 Emerson Electric Corporation, Avocent Division

2009 – 2015 Global Engineering Program Manager, Emerson Corporation, Avocent Div. – Huntsville, AL

Program Manager of a power distribution products portfolio. Responsible for global engineering development and release of newly developed electrical products engineered in the USA and Germany but built in in Mexico and Czech Republic. This product is called MPH and MPH II. This is a computer network controlled high voltage and high amperage load control device engineered for worldwide installations adapted for each local countries either three phase and single phase AC distribution grid. As Program Manager I also provided direction and oversite of product safety testing and certifications, such as UL, CSA, CE, and PSE for product safety compliance in over 100 countries. So far over 1 Million units of the products I developed are in service. This role reported to the Vice President of Engineering of Emerson's Avocent Division.

1995–2009 Hewlett-Packard Co.

1995-2009 Managing Director, Computer Systems Engineering

Now this division is called "Keysight Technologies". Developed new automated instrument calibration systems and new circuit designs for oscilloscopes, high precision DC power supplies, EMI & EMC Measurements, Phase Noise, Physical Layer Test Systems, RF & Microwave Test Accessories, Device Current Waveform Analyzers, AC and DC power analyzers. Network analyzers and vector signal analyzers.

1983–1995 IBM Corporation

1983-1995 IBM Corporation, Electronic Systems Engineer, Systems Division – Armonk, New York

Developed Mainframe computer CPU, Memory and Input and Output peripherals for S/370 and S/3090 platforms. Part of the design team for the first IBM PC products, responsible for power supplies, main computer circuit boards and Operating Systems integration. Also assigned to NASA in Houston, Cape Canaveral and Marshall space flight centers for launch control and space vehicle telecommunications using high frequency and microwave RF signals.

1977–1983 Textron Corporation

1977-1983 Textron Corporation, Sundstrand Division, Control Systems Engineer – Rockford, IL

Developed Electronic Control Systems for control of Aerospace applications generating power for inflight services, control of engine start, elevators, rudder and aileron controls. Subcontractor to Lockheed Martin for enhancements to the flight data recorder (Black Box) improving circuit mountings for improved crash survival.

Developed control systems for off road construction equipment such as cement mixers, combines, bulldozers and high rise cranes.

Industry Certifications & Expertise

Certified Project Management Professional (PMI/PMP)
Certified in Governance of Enterprise IT (CGEIT)
Certified in Risk and Information Systems Control (CRISC)
Certified Information Systems Auditor (CISA)
Certified Information Security Manager (CISM)
Certified in Control Objectives of IT (COBIT)
Certified in Information Systems IT Infrastructure Library (ITIL) for Operations, Design and Configuration

FCC Amateur Extra Class License Holder
FCC Land Mobile License Holder
FCC Marine Mobile License Holder

High tech power management systems, UPS and power distribution
Switched Mode Power Supplies
Electrical and Electronic hardware engineering
Computer systems engineering
Radio Systems design and testing
High Current and High Voltage switches
Internet communications using both wired and wireless technologies
UL, CE (Europe), Africa, Japan, Australia and China product safety certifications
Cyber encryption and protection of Radio Communications using digital signals
RFI/EMI mitigation

Hold a US DOD Top Secret Clearance and am an instructor of information security encryption control and compliance to the US Missile Defense Agency, NASA, and US Department of Homeland Security.

Date: May 26, 2018

Subject: Autonomous Car Limitations

From: William S. Bathgate

To: Michigan House Energy Committee

~~Let me re-introduce myself~~, I have emailed many members of the committee before and testified in person several times in 2018. I am and electrical engineer and worked for FCA (Chrysler) through January 2018. I am now retired but have a keen interest in this technology and I support autonomous vehicles and keep up to date with my colleagues and changes at FCA. While at FCA I had a key role in the telecommunications systems of autonomous vehicles.

~~There is a hearing on Tuesday May 2~~The hearing today 9, 2018 regarding the proposed new laws to expedite timelines regarding 5G technologies by removing permitting restrictions. I was informed that the telecoms with a vested interest in this technology has told Michigan legislators that 5G communications will facilitate autonomous vehicle adoption and by adopting 5G Michigan would be a leader in autonomous vehicles.

I need to tell the members of the committee is that 5G is not an essential element of autonomous vehicles. We have many states with these new vehicles operating successfully, including Michigan without 5G in place today. It is illogical to now state the argument that without 5G Michigan will be not be able to have autonomous vehicles. The evidence is just not there.

At FCA we realized that the vehicle has to be entirely controlled by internal systems. Those systems are in vehicle radar, GPS, video technologies and proximity sensors. The concept of having a vehicle controlled by a remote radio signal of any type is very hazardous. Also cell towers and especially 5G antennas are powered by the grid, in Michigan the grid is not impervious to numerous outages and other system failures such as trees obstructing an antenna in the front yard of a home during a storm etc.

Now and in the future 5G cannot provide vehicle position accuracy. 5G antennas will be deployed laterally along a power pole mounting line. In other words a straight line. In order to provide vehicle position accuracy you need at least three signals at least at a 120 degree angle from each other in order to triangulate an accurate position. In addition the broadcast range of a 5G antenna is limited because of the higher frequencies, even if you could place 5G antennas at a 120 degree angle the antenna separation from the vehicle would have to be within 100 feet of each antenna. It is unrealistic to deploy a 5G antenna in this density throughout the state. 5G antennas in a lateral line as currently planned can never achieve positional accuracy. Today GPS signals typically provide between 5 to 7 satellites and is extremely reliable for vehicle position accuracy.

Statements by the telecoms that this will enable high speed internet to remote farms is a fabrication. Do you really think they will deploy the hundreds of thousands of required antennas to service farms? Be realistic, the telecoms have been collecting fees from telephone bills for over a decade intended to fund wide deployment of fiber optic networks to homes and business, that went into their pockets and were never used for the intended purpose.

No development for vehicle control is being pursued relying on 5G technology. The representation by the telecom companies that autonomous vehicles need 5G is a false argument.

Here is what is being pursed

1. Exchange of cloud management information – this is latent data not needed in real time and can be sent by current cell technology such as 4G
2. Sensor data – this is latent date and not needed in real time for vehicle control
3. Multimedia content – this is nice to have, but is being successfully provided today using 4G technology

In summary the argument that 5G is essential for Michigan being the most advanced autonomous vehicle platform is not true. Michigan can be a leader without the massive costs associated with 5G. Permit applications as defined in the bill do not adequately pay for the administrative costs that will be incurred by our townships and city staffs because of the required quick turnaround (sometimes called a shot clock) demanded in the bill. If the local government cannot meet this shot clock timing the telecoms will sue the local government. This will be yet another added costs passed on to taxpayers as an unfunded mandate by state government, because our townships and city will need to add staff to process the millions of antenna site permits. This cost will fall again to the unaware taxpayers in Michigan. The loss of local control over permitting and provisioning of telecom facilities is an unprecedented step in state law. In Ohio over 80 cities have sued the state over this type of action made by their state in a late night insertion into a bill that is the same approach as being attempted here.

It is well known by real estate companies in Michigan that a cell tower adjacent to a home vastly depreciates property values, up to 20% devaluation. With a cell tower at very 2-5 homes the detrimental impact to Michigan property values will incalculable. Your constituents should be made fully aware of what is coming to their front yard. There has not even been a survey of constituents to get a feel of the public. This is a back door give away to the telecom industry and it will be paid for by public funding at the local level and loss of property values. But if Michigan passes this law it will be too late for anyone to do anything about it.

Your constituents will hold you directly accountable as a betrayal of their trust in you to represent them if you vote for this bill. If you vote for this bill this will be a gift to whatever party candidate that would oppose you in November. The telecom industry is working in their own self-interest, as our representatives your interest should be the citizens of the state and their welfare not whether or not we can download a movie in 30 seconds versus 5 minutes. Your vote on this bill will be adjudicated in November, do you side with the telecom industry over your constituents?

Do you really want this in front of your home with no say or your permission?

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